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Remarks

Status of the Application

Claims 1-15, 17-24, 27-35, and 37-42 are pending with the entry of this amendment, with cancellation of originally filed claims 16, 25, 26, and 36 respectfully requested. Claims 14, 17-18, 21, 29, 32, 35, 37, and 39 are amended herein.

The Amendments

The amendments to the claims do not add new matter to the application as originally filed. The amendments to the claims find support in the specification at, for example, page 5, paragraph 00017 and page 16, paragraph 00057, and also in the originally filed claims.

The Claim Objections

Claims 29 and 32 stand objected to under 37 CFR § 1.75(c) on two grounds. First, these claims are said to be substantial duplicates of claims 1 and 14, respectively. Second, these claims are said to be of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have amended claims 29 and 32 to overcome these objections. First, each of these claims now includes a limitation that requires, in addition to the positioner (claim 29) or retaining device (claim 32), "at least one additional component for performing high-throughput assays or reactions in microtiter plates."

Applicants have also rewritten claims 29 and 32 to place them in independent form as suggested by the Examiner. This is believed to obviate the second ground of the rejection.

The 35 USC § 102 Rejections

Claims 1-9, 12 and 29-30 stand rejected under 35 USC § 102(b) as allegedly being anticipated by Norris (US 5,592,289). Applicants respectfully traverse. Claim 1 is directed to a positioning device for positioning a microtiter plate that "comprises at least a first alignment member that is positioned to contact an inner wall of the microtiter plate" (emphasis added). An "inner wall," as this term is used by Applicants, is described in, for example, paragraph 00041 on page 9 and illustrated in Figure 4 (reproduced below) as reference numeral 88. Applicants

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discovered that using the inner wall, as opposed to an outer wall of the microtiter plate, for alignment is critical to achieving the alignment precision that is required for reproducible robotic operations on microtiter plates, particularly for plates that have large numbers of very small wells (e.g., 1536 well plates).

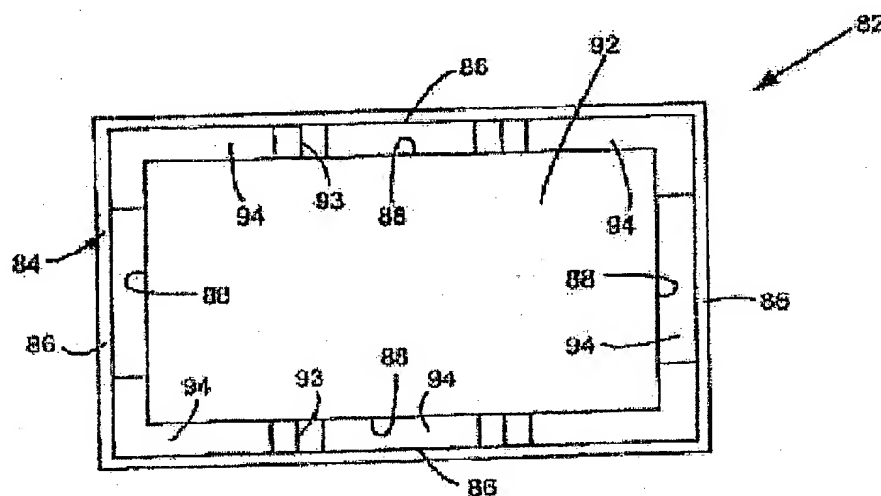


Fig. 4

The device described by Norris does not include any alignment surfaces that are positioned to contact an inner wall of a microtiter plate. In contrast, the device described by Norris uses guide pins 222, 224 and 226 (as shown in Figure 6, reproduced below) to contact outer walls (105 and 110) and thereby press outside walls 103 and 112 of the plate against contact planes 272 and 274 (see, e.g., column 6, lines 52-65). Nowhere does Norris describe a positioning device that has an alignment surface which is positioned to contact an inner wall of a microtiter plate. Therefore, Norris does not anticipate claim 1, or any of claims 2-9, 12, and 29-30, each of which also includes this claim limitation.

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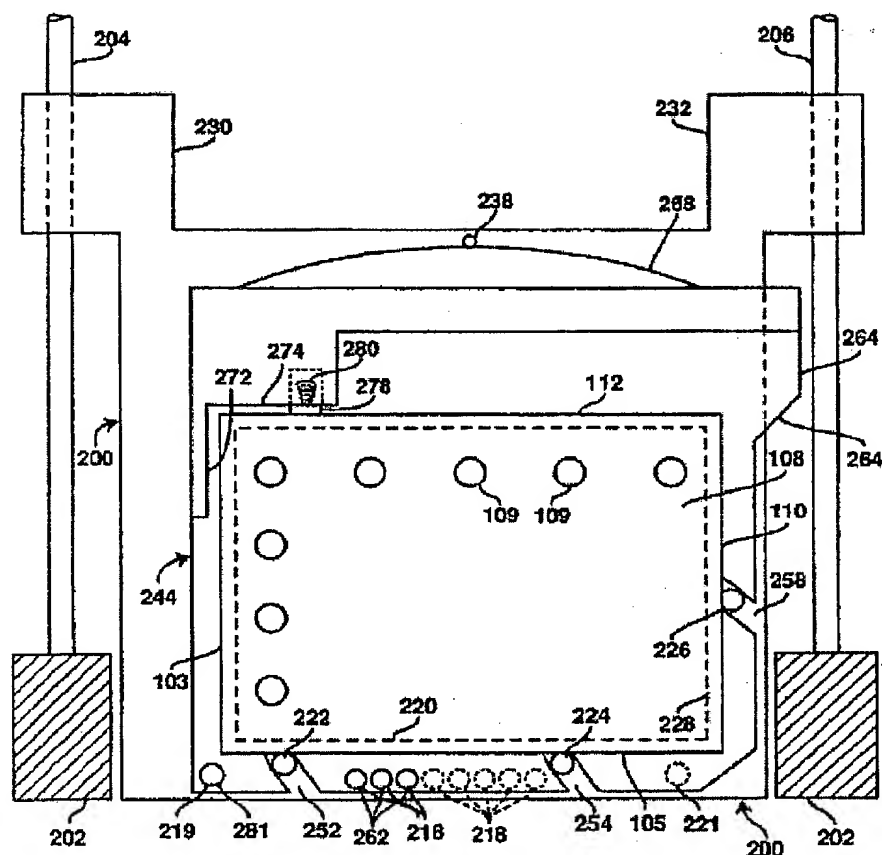


FIG. 6

Claims 1-2 and 12-18 stand rejected under 35 USC § 102(e) as allegedly being anticipated by Bevirt (US 6,063,579). Applicants respectfully traverse this rejection. Claim 1, as discussed above, requires that the positioning device have an alignment member that is "positioned to contact an inner wall of the microtiter plate" (emphasis added). Bevirt does not describe any devices that have such an alignment member. The rejection indicates that internal structure (60) as shown in Figure 4 (reproduced below) functions to correctly position the microtiter plate. However, this structure does not contact an inner wall of the microtiter plate, as the term is defined by Applicants as discussed above. The elastomeric seals 56 in Fig. 4 of Bevirt are adjacent to the inner walls of the microtiter plate, but do not actually contact the inner walls. Moreover, even if the elastomeric seals 56 did contact the inner walls, they would not be useful for precisely positioning the microtiter plate because the elastomeric seal "is sufficiently

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flexible or deformable to allow for horizontal or vertical motion of the plate with respect to the mold when pressure is applied" (column 2, lines 36-39). Therefore, Bevirt does not anticipate claim 1, or claims 12-13, which depend from claim 1.

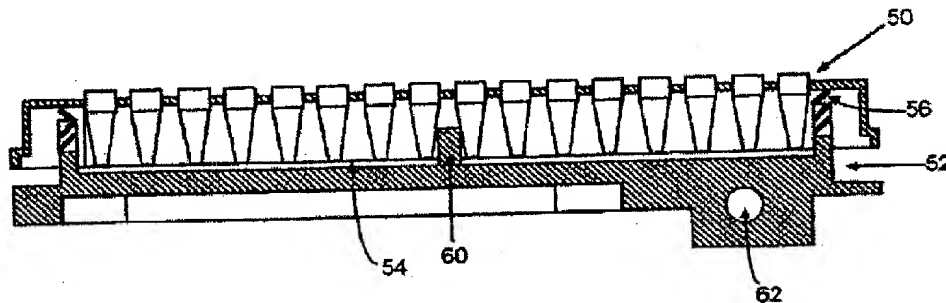


Fig. 4

Claim 14 is directed to a retaining device for retaining a microtiter plate in a desired position on a support, wherein the retaining device comprises a vacuum plate. Applicants have amended claim 14 herein to specify that the vacuum plate comprises "an interior surface and a lip surface, with the interior surface being recessed relative to the lip surface" and that a perimeter surface of a microtiter plate is placed in contact with the lip surface. The device described in Bevirt does not have these elements. As shown in Figure 4 of Bevirt (reproduced above), the perimeter edge of the microtiter plate is not in contact with any structure of the positioner. Nor does the Bevirt device have a recessed interior surface. In contrast, as shown in Figure 5 (reproduced below), the application of a vacuum to the Bevirt device draws the bottom of the wells 74 into contact with the bottom surface 76 of the mold (column 4, lines 28-30). Therefore, claim 14 as currently amended is not anticipated by Bevirt. Nor are claims 15, 17 or 18, each of which depends from claim 14. Rejected claim 16 is canceled.

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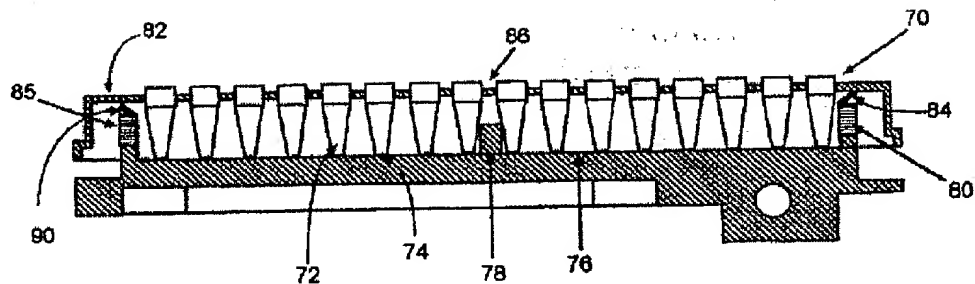


Fig. 5

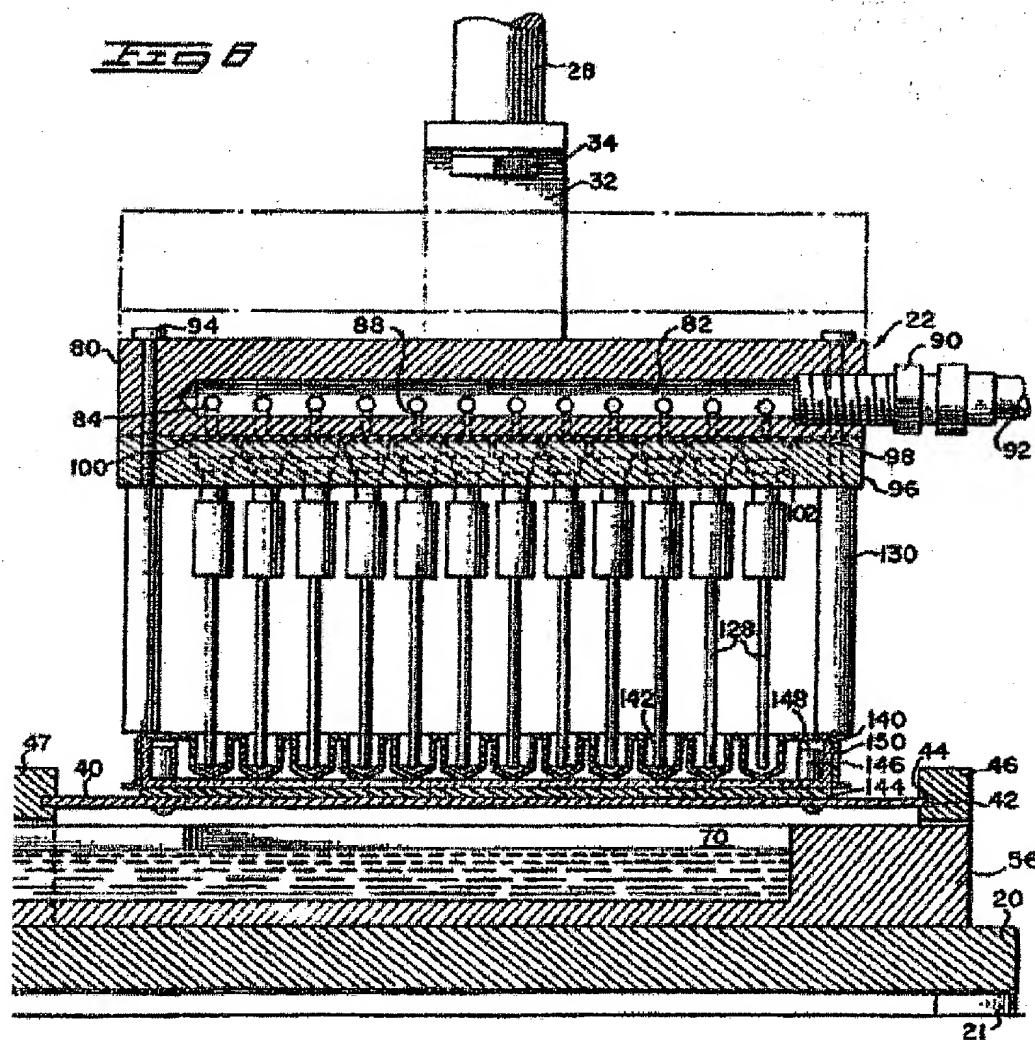
Claims 1-12, 21-23, 25-26, 29, 39-40 and 42 stand rejected under 35 USC § 102(b) as allegedly being anticipated by Burton (WO 99/04228) or Modlin (US 6,071,748). As these two references have equivalent disclosures, and to be consistent with the Office Action, Applicants' remarks below refer to the Modlin patent. Applicants respectfully traverse this rejection because the cited references do not describe a positioning device in which an alignment member is positioned to contact an inner wall of a microtiter plate. In contrast, the positioners described in the cited references have alignment members (shown in Fig. 22a-c as 604a,b and 606a,b) that contact the outer edges of the microtiter plate. See, e.g., column 20, lines 14-15 ("In analyzer 50, long sides of the rectangular sample container are positioned against flanges 604a,b."). The positioning arms in the device described by Modlin also contact an outer wall of the microtiter plate, and act to push the outer walls of the plate that are opposite the positioning arms against the flanges (see, e.g., column 21, lines 25-30: "Biasing spring 642a pushes Y-axis positioning arm 622a toward cavity 608. Bumper 632 engages the sample container and pushes it away from body 602 until it abuts extensions 606a,b. Biasing spring 642b pushes X-axis positioning arm [sic, arm] 622b toward cavity 608. Edge 660 of second projection 658 engages the sample container and pushes it away from flange 604b until it abuts flange 604a."). Modlin does not describe any devices in which the a positioner includes an alignment member that contacts an inner wall of a microtiter plate. For this reason, neither Modlin nor Burton anticipates claim 1, or any of claims 2-12 and 29, each of which also includes this claim limitation.

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Applicants have amended claims 21 and 39 to incorporate the limitation that the object being positioned is a microtiter plate, and that either or both of the first alignment surface and the second alignment surface is an inner wall of the microtiter plate. Consequently, these claims are not anticipated by the cited references. Dependent claims 25, 40 and 42 are likewise not anticipated in view of the amendments to independent claims 21 and 39.

Claims 1, 3-5, 12, 29 and 31 stand rejected under 35 USC § 102(b) as allegedly being anticipated by Lancaster (US 3,568,735). Applicants respectfully traverse this ground of rejection for the same reason as each of the previous anticipation rejections: the cited reference does not describe a positioning device comprising an alignment member that is positioned to contact an inner wall of a microtiter plate. As shown in the portion of Figure 6 of Lancaster that is reproduced below, the rivets 146 support the plate locator 150 (which is shown in more detail in Figure 10). The microtiter plate 140 rests on the sides of the locator 150, as shown in Figure 6. Importantly, Figure 6 shows that the sides of the locator contact the inside edge of the outer wall of the microtiter plate. Importantly, a gap is clearly visible between the inner wall of the microtiter plate and the sides of the locator, and no alignment member contacts an inner wall of the microtiter plate. Since Lancaster does not describe a positioner in which an alignment member contacts an inner wall of a microtiter plate, the reference does not anticipate claim 1, or any of claims 3-5, 12, 29 and 31, each of which also include this claim element.

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The 35 USC § 103(a) Rejections

Claims 13-20, 24, 27-28, 30-38 and 41 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Burton or Modlin, and further in view of Cathcart (US 5,443,791), Markin (US 5,417,922) and Bevirt (US 6,063,579). Applicants respectfully traverse this rejection.

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Claims 13, 24, 27-28, 30-31, and 35-41 each include a claim limitation which requires that at least one alignment member contacts an inner wall of the microtiter plate when the microtiter plate is in a desired position on a support. As discussed above, none of the cited Burton, Modlin, or Bevirt references teaches a device having such a structure. The Cathcart and Markin references likewise fail to teach such a device. Since not all claim elements are described in the cited references, the claims are not *prima facie* obvious.

Claims 14, 15, 17-20, and 32-34 each include the claim limitation that the device comprises a vacuum plate that comprises "an interior surface and a lip surface, with the interior surface being recessed relative to the lip surface" and that a perimeter surface of a microtiter plate is placed in contact with the lip surface. Neither Burton nor Modlin describe a device that has such a structure, as discussed above. The Bevirt, Markin and Cathcart references likewise fail to teach a device having the claimed structure. Consequently, these claims are not obvious over the cited references.

Conclusion

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for examination. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned attorney at 858-812-1547.

Respectfully submitted,



Timothy L. Smith, Ph.D.
Reg. No. 35,367

GENOMICS INSTITUTE OF THE NOVARTIS RESEARCH FOUNDATION
10675 John Jay Hopkins Drive, Suite E225
San Diego, CA 92121
Tel: (858) 812-1547
Fax: (858) 812-1981

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